Journal of the Royal Society of Western Australia, 80:235-237, 1997

Acacia williamsiana (Fabaceae: Julifloraе): A new granitic outcrop species from northern New South Wales

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Abstract

Acacia williamsiana J.T. Hunter a new rare species (2RCa) restricted to granitic outcrops within the New England Batholith is described. This species is known from four disjunct localities within the North Western Slopes botanical division in New South Wales.

Introduction

During the compilation of a preliminary checklist of the flora of Kings Plains National Park on the north western slopes of New South Wales by John Williams, an unidentifiable specimen of *Acacia* was collected. This taxon was collected again from Kings Plains National Park by the author during an extensive survey of the granitic outcrop flora of the New England Batholith. Further collections of material that match this taxon were made during this survey on granitic outcrops within Severn River Nature Reserve and the proposed Kwiambal National Park. Subsequently a population was also discovered on a granite outcrop by the author, during an inspection of a new fire trail within the Torrington State Recreation Reserve.

Acacia williamsiana at all localities was restricted to granitic outcrops or around the base of outcrops. This taxon often dominated habitats where it was found, sometimes forming monospecific stands.

Materials and Methods

This study is based on examination of materials collected by the author and others at all known localities of this taxon. All measurements were made from dried specimens.

Taxonomy

Acacia williamsiana J.T. Hunter, sp. nov.

Acacia williamsiana, species nova similis *A. bulgaensis* Tind. & Stuart J. Davies a qua ovarium glabris, pedunculus brevissimus, et juvenus phyllodium glabris.

Typus: New South Wales: North Western Slopes: on the banks of Kings Plains Ck, in Kings Plains National Park, north-west of Glen Innes, *J.T. Hunter 4112 & P.J. Clarke*, 1 November 1996 (*holo*: NSW; *iso*: AD, BRI, HO, MEL, NE, PERTH).

Tall shrub to small tree 2—8 m tall, often spreading widely when young then becoming fruticose and eventually erect; *Bark* fissured and flaky, grey to dark grey-brown; *branchlets* angular, flattened to ellipsoid in section, glabrous, ± glaucescent, yellow-orange to red-brown. *Phyllodes* borne singly, diphyllous; phyllodes on young plants broad elliptic to obovate, sometimes slightly falcate, often held horizontally, 1.3—7.5 cm long, 1.3—2.5 cm wide, pale green almost glaucous in appearance, glabrous; longitudinal nerves 60—100 per phyllode, with 3—5 more prominent; apex obtuse with a broad ± oblique callous mucro; mature phyllodes oblanceolate, linear, elliptic to narrow elliptic, rarely slightly falcate, held erect, 4.5—12 cm long, 0.4—1.1 cm wide, pale green to subglaucous, glabrous or rarely pilose and glabrescent; longitudinal nerves 20—60 per phyllode, with 3—5 more prominent; apex acute with a distinct ± oblique callous mucro, 0.5—3.5 mm long; *gland* 0 or 1, obscure ± hairy, 0—0.5 mm from pulvinus, orifice elliptical; *pulvinus* 0.5—3 mm long, wrinkles transverse, pale; *stipules* 2, 0.3—1 mm long, triangular, often caducous, ± pilose. *Inflorescences* spicate, borne in pairs one on either side of the phyllodes, sessile, initially curved, 1.5—4 cm long in fruit, glabrous or rarely hairy basally, > 150 flowers per spike, pale yellow; *bracts* 2, glabrous, pilose or pubescent, 1.2—2.5 mm long, 1—1.7 mm wide, ± caducous; *pedicels* lacking; *buds* broad ovate; *stipe* 0.5—1.5 mm long in fruit; *bracteole* 0.7—0.9 mm long, pale brown, distinctly clawed, the lamina perpendicular to the claw, tomentose apically and abaxially. *Flowers* 5-merous; *calyx* fused, tube 0.7—1.2 mm long, lobes minute ca. 0.1 mm long, silver woolly to tomentose, more so basally; *corolla* valvate, fused about half way or more, tube 1—1.5 mm long, lobes 0.8—1.2 mm long, glabrous, minutely clawed; *stamens* with filaments 1.7—2.5 mm long; *anthers* versatile, 0.1—0.15 mm long; *ovary* ellipsoid, 0.2—0.5 mm long, 0.2—0.4 mm wide, green, hairy, viscid; *style* 1—2.5 mm long, stigma minutely lobed. *Legumes* linear, falcoid but not curled, ± constricted between seeds, 3.5—9 cm long, 2—4 mm wide, brown, ± glaucescent, wrinkled, margins thickened, turgid when young and fresh becoming flat. *Seeds* 6—12 arranged longitudinally in legume, ellipsoid, 0.6—1 mm long, 0.3—0.6 mm wide, dark brown to black; *funicle* filiform, folded 2—3 times. Fig. 1.

Specimens examined. New South Wales: North Western Slopes: Kings Plains Ck, Kings Plains National Park, *J. T. Hunter 1866 & V.H. Hunter*, 27 April 1994 (NE);

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Figure 1. **A—H**, *Acacia williamsiana*. **A**, adult branch with flower buds. **B**, young branch. **C**, adult branch with flower buds. **D**, venation pattern of phyllode. **E**, pulvinus and gland. **F**, adult branch with pods. **G**, flower. **H**, inflorescence. Scale bars; A, B, C, F = 4 cm; D = 7 mm; E = 4 mm; G = 2 mm; H = 13 mm. Drawn from *J.T. Hunter 3933* (A); *J.T. Hunter 2888* (B); *J.T. Hunter 2934* (C, D, E); *J.T. Hunter 4113* (F); *J.T. Hunter 4114* (G, H). Drawn by D Mackay.

Kings Plains, 1 km N of Falls, 50 km NW of Glen Innes, *J.T. Hunter 2888*, 9 March 1995 (NE); 10 km W of Torrington on the Buther Rd, *J.T. Hunter 3931—3935*, 4 May 1996 (NE JTH 3931; BRI JTH 2932; NSW JTH 3933; MEL JTH 3935); 29.3 km from Emmaville on the Gulf Rd, *C. Nano & J.B. Williams s.n.*, 13 December 1996 (NE); Severn River Nature Reserve, NE of Glen Innes, near Pindari Dam, *J.T. Hunter 3112*, 13 June 1995 (NE); Severn River Nature Reserve, NE of Glen Innes, near Pindari Dam, *J.T. Hunter 3142*, 14 June 1995 (NE); McIntyre Falls, Kwiambal National Park, W of Ashford, *J.T. Hunter 4114 & P.J. Clarke*, 1 November 1996 (BRI, MEL, NE, NSW, PERTH); McIntyre Falls, Kwiambal National Park, W of Ashford, *J.T. Hunter 4113 & P.J. Clarke*, 1 November 1996 (NSW).

Distribution. This species has been found in four disjunct localities on the north western slopes of New South Wales; Kings Plains National Park 40 km north-west of Glen Innes, Severn River Nature Reserve 50 km north-west of Glen Innes, Torrington State Recreation Reserve 60 km north-north-west of Glen Innes and the proposed Kwiambal National Park and adjacent Severn State Forest 30 km west of Ashford.

Habitat. Found in open and exposed situations in shrubland and low woodland on and around the base of granite and porphyry outcrops between 280—1100 m altitude. The mean annual rainfall in these areas is between 640—800 mm. This taxon is found within crevices of bare rocky slopes and shallow soil surrounding the bare slopes. This species often forms thick stands when mature, and can dominate or co-dominate communities in which it is found. Associated species include *Callitris endlicheri* (Parl.) F.M. Bailey, *Eucalyptus prava* L. Johnson & K. Hill, *E. caleyi* Maiden, *E. dealbata* A. Cunn. Ex Schauer, *Allocasuarina inophloa* (F. Muell. & Bailey) L.A.S. Johnson, *A. brachystachya* L.A.S. Johnson, *Micromyrtus grandis* J.T. Hunter, and *Astrotricha roddii* Makinson.

Flowering and fruiting. September to December

Conservation status. A ROTAP code of 2RCa (Briggs & Leigh 1988) is suggested. This species has a disjunct distribution and is known only from four localities and from a restricted habitat, on and around the base of granitic outcrops. Therefore this species is considered to be rare. All known populations are within some form of reservation under the control of the New South Wales National Parks and Wildlife Service.

Etymology. The specific epithet is in honor of Mr John B. Williams former lecturer and now honorary fellow at the University of New England, Armidale, NSW. Mr Williams has worked extensively in the north-east of New South Wales, particularly on granite flora and was the first to find and note this species as a potential new taxon.

Notes. This taxon has a diverse appearance both in terms of habit and phyllode form. Comparatively young plants have a divaricate habit with phyllodes that are short and broad (Fig 1). Adult plants have a tall and straight habit with long thin phyllodes that are held erect. Forms at intermediate stages are often present. This species is killed by fire and seedlings appear readily afterwards. Seedlings, however, do not seem to be present unless a disturbance such as fire has occurred. Consequently individual populations are usually the same cohort grown after single wildfire events. Only where fire has passed differentially over outcrops are mixed aged populations found. The affinities of this species are unclear at this stage. However, it is possible that they are near *A. bulgaensis* Tind. & Stuart J. Davies and *A. diphylla* Tind.

Conclusion

Acacia williamsiana is a distinct species endemic to granitic outcrops of the New England Batholith. Other members of the Juliflorae growing on the New England Batholith are granitic outcrop endemics, such as *A. pycnostachya* F. Muell. and *A. pubiflora* Pedley. Others of the Juliflorae while not restricted to outcrops, are commonly found on them. Further work on the phylogenetic and biogeographical relationships of this species and its relatives is warranted.

Acknowledgments: The author wishes to thank the director of the NSW National Parks and Wildlife Service for allowing collection of materials within service areas. B Briggs is thanked for allowing access to specimens at NSW. Thanks also to J B Williams for discussions, the staff of the Glen Innes office of the NSW National Parks and Wildlife Service for their assistance, D Mackay for illustrations, and J J Bruhl and P J Clarke for supervision. The author acknowledges the receipt of an Australian Postgraduate Award scholarship.

References

Briggs J D & Leigh J H 1988 *Rare or Threatened Australian Plants.* Australian National Parks and Wildlife Service, Canberra. Special Publication 14.